

Substance Abuse: Treatment and Recovery

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Drug Addiction

- **Very common disorder**
- Often has chronic duration
- Treatments proven effective
- Inadequate percentage of addicted population in treatment
- Goal: reduce treatment gap
- Outcome: public health benefits

Past Heroin & Cocaine Use, U.S.A.

Used	Heroin	Cocaine
Lifetime	3,145,000	34,153,000
Past year	398,000	5,628,000
Past month	166,000	2,021,000

NHSDUH (2004)

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Natural History of Heroin Dependence*

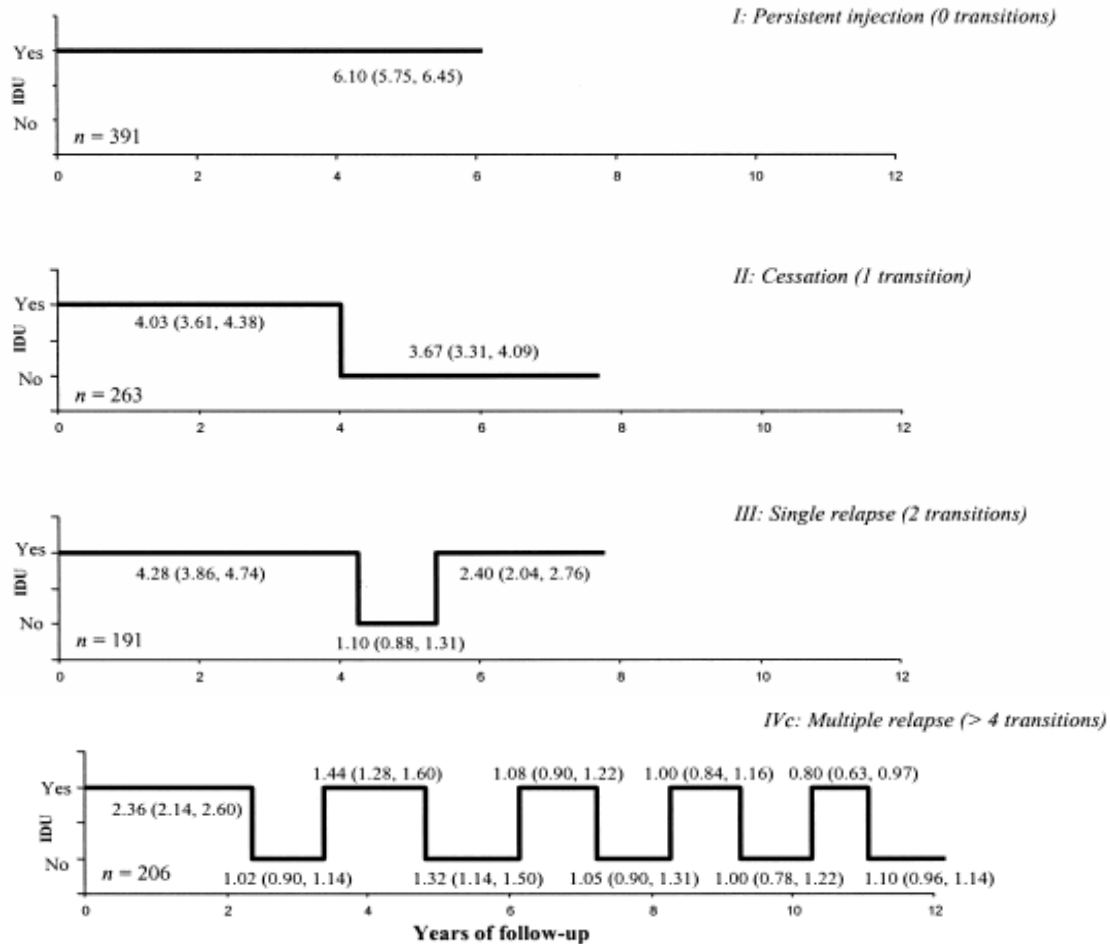
33 year follow-up of heroin addicts (N = 581)

- Overall **Mortality: 48%**
- AMONG SURVIVORS:
 - HEROIN USE in past year: 40%
 - Many had chronic health, psychological and criminal justice problems.

* Hser, Hoffman, Grella & Anglin (2001)



Longitudinal patterns of drug injection over 12-year follow-up



29%

20%

14%

37%

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Many Paths to Recovery

2% per year spontaneous remission

Narcotics Anonymous

Faith-based programs

Complementary medicine

Medications

Counseling

**Organized treatments with
combinations of the above**

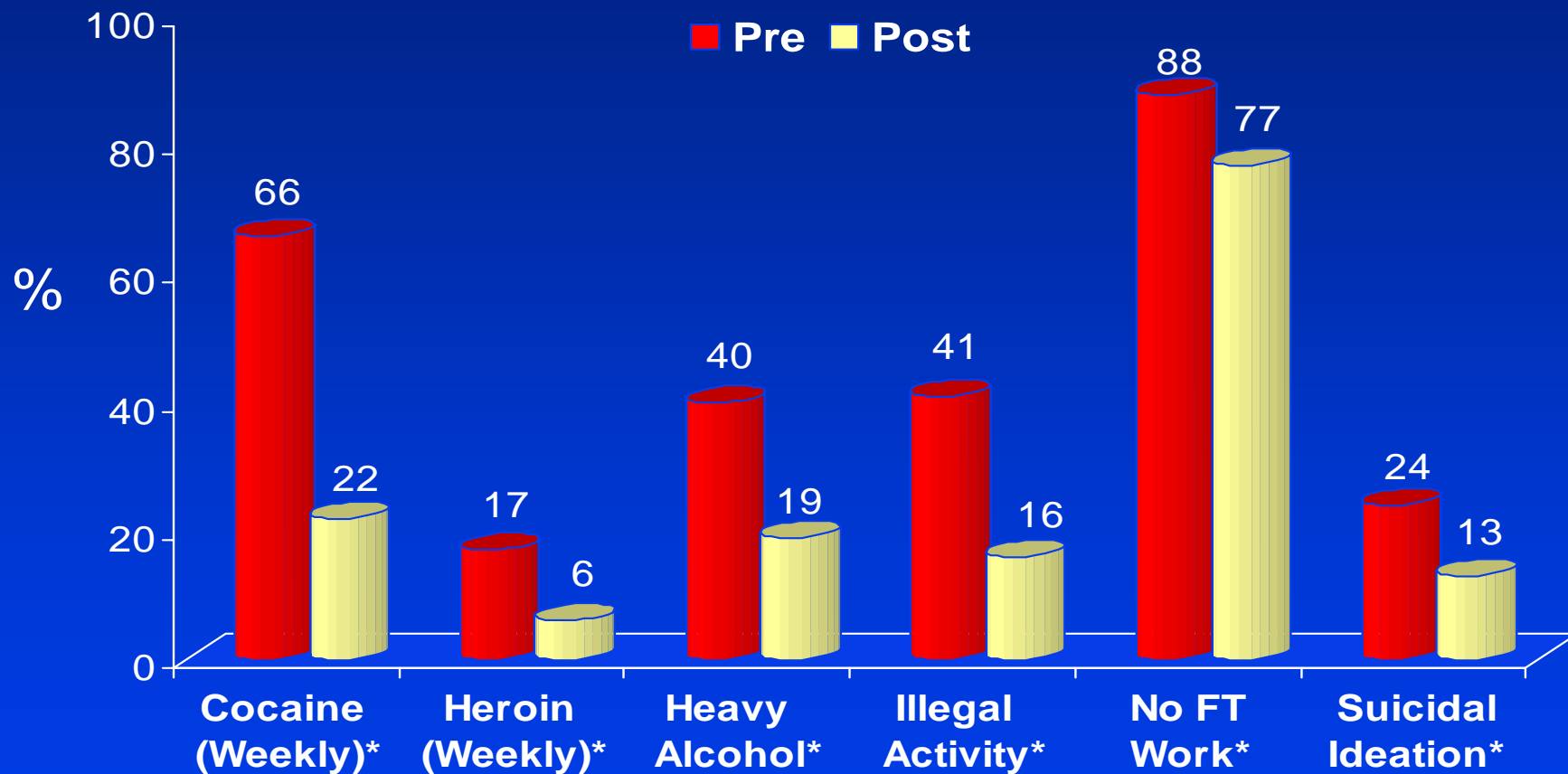
Organized Treatments

- Residential Treatment
 - Therapeutic Community
 - Halfway House
 - Rehabilitation Program
- Outpatient Treatment
- Counseling with or without medication
- Opioid Treatment Programs
 - methadone or buprenorphine
- Physician Office-Based Treatment

Outcomes of Residential Treatments

- Long term residential treatment
- Many studies have demonstrated effectiveness
- DATOS
 - Multi-site study in 11 US cities
 - Conducted 1991 -1993
 - 676 patients received long term residential treatment

Long-Term Residential Treatment: Improvement After Treatment (N = 676)

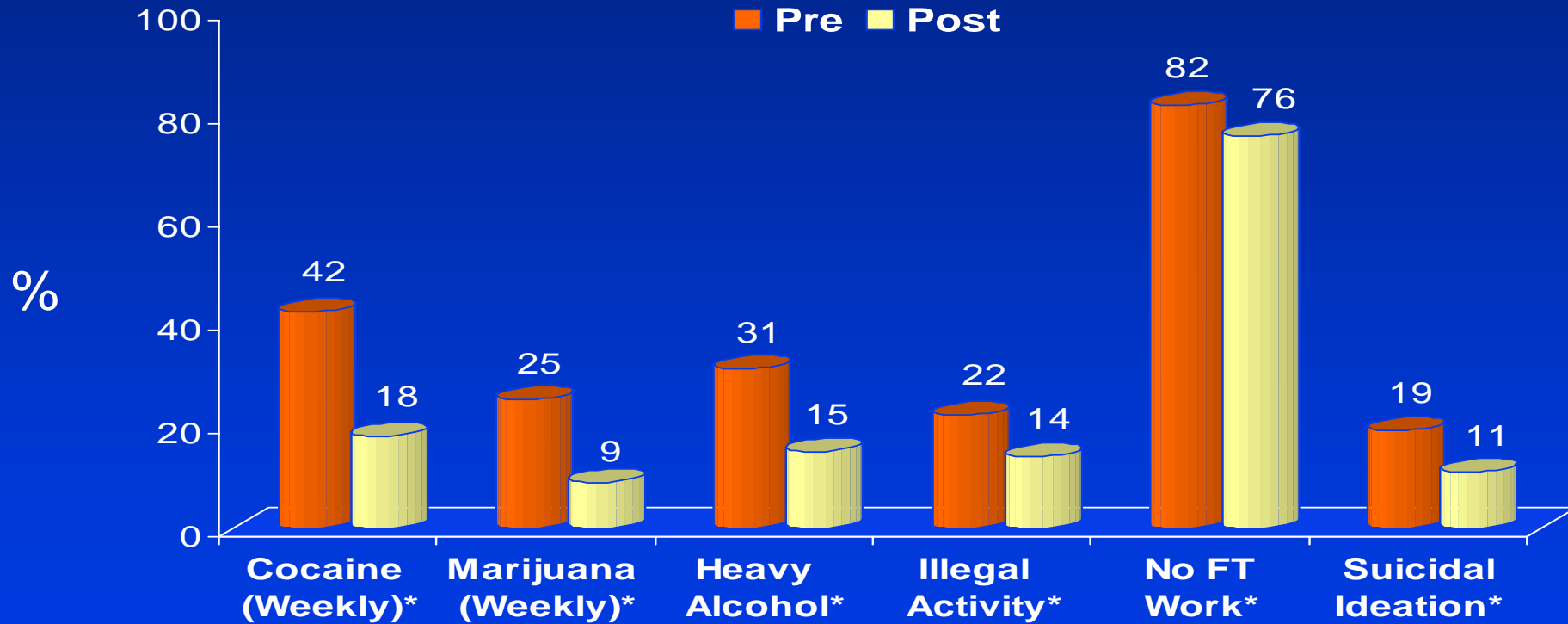


* $p < .001$

Hubbard, Craddock, Flynn et al., 1997

Outcomes for Outpatient Treatments

Outpatient Treatment Improvements After Treatment (N = 764)



Hubbard, Craddock, Flynn et al., (1997)

* $p < .001$

Outcomes for Opioid Treatments:

Heroin Addiction versus Methadone Treatment

	<i>Heroin</i>	<i>Methadone</i>
Route	Injected	Oral
Onset	Immediate	Slow
Euphoria	Yes	No
Dose	Unknown	Known
Cost	High	Low
Duration	4 hours	24 hours

Swedish Methadone Maintenance Program

A Controlled Study: Rehab Rate = 76% (Gunne, 1981)

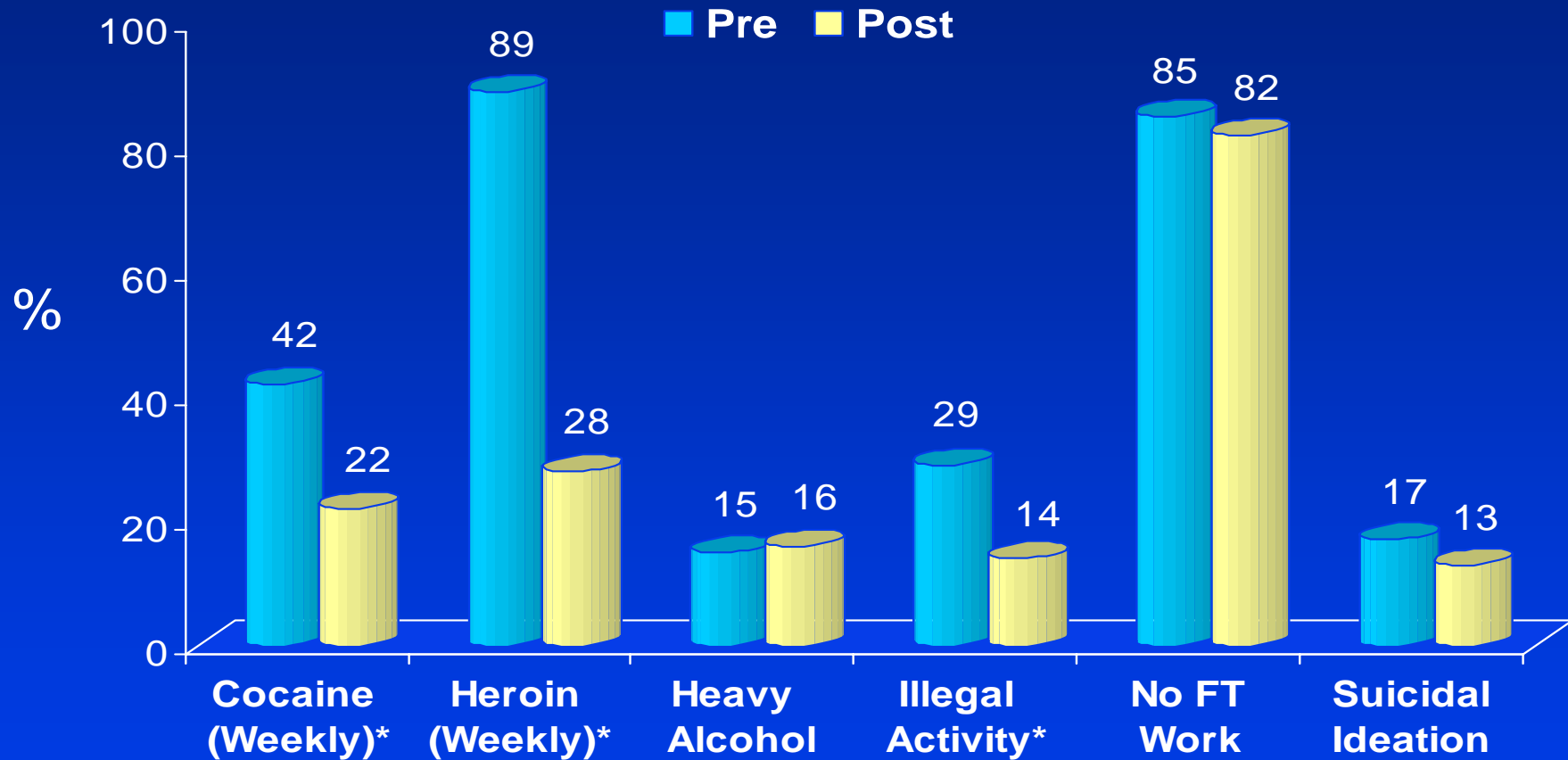
Outcome (at 2 years)	MMT (n=17)	Untreated (n=17)*
Stopped Use	12 (73%)	1 (6%)
Recurrent	5	12
Deaths	--	2
Prison	--	2
Other Conditions	--	3

*Note: After 2 years, 8 entered MMT

Mortality in Heroin Addiction in Sweden: Impact of Methadone Treatment (Gronbladh, 1990)

3 Groups	N	Age/Sex Adjusted SMR (reference: Population = 1)
Street Addicts (no Tx)	115	63
Expelled from Tx	55	55
Rehabilitated	34	4

Opioid Treatment Programs Improvements After Treatment (N = 727)



*p<.001

DATOS study Hubbard, Craddock, Flynn et al., 1997

Attributes of Opioid Agonist Treatment

- Effective orally or sublingually (buprenorphine)
- Reduces heroin craving
- Blocks withdrawal
- Blocks the euphoric effects of heroin

Detoxification: Poor Outcomes by Itself

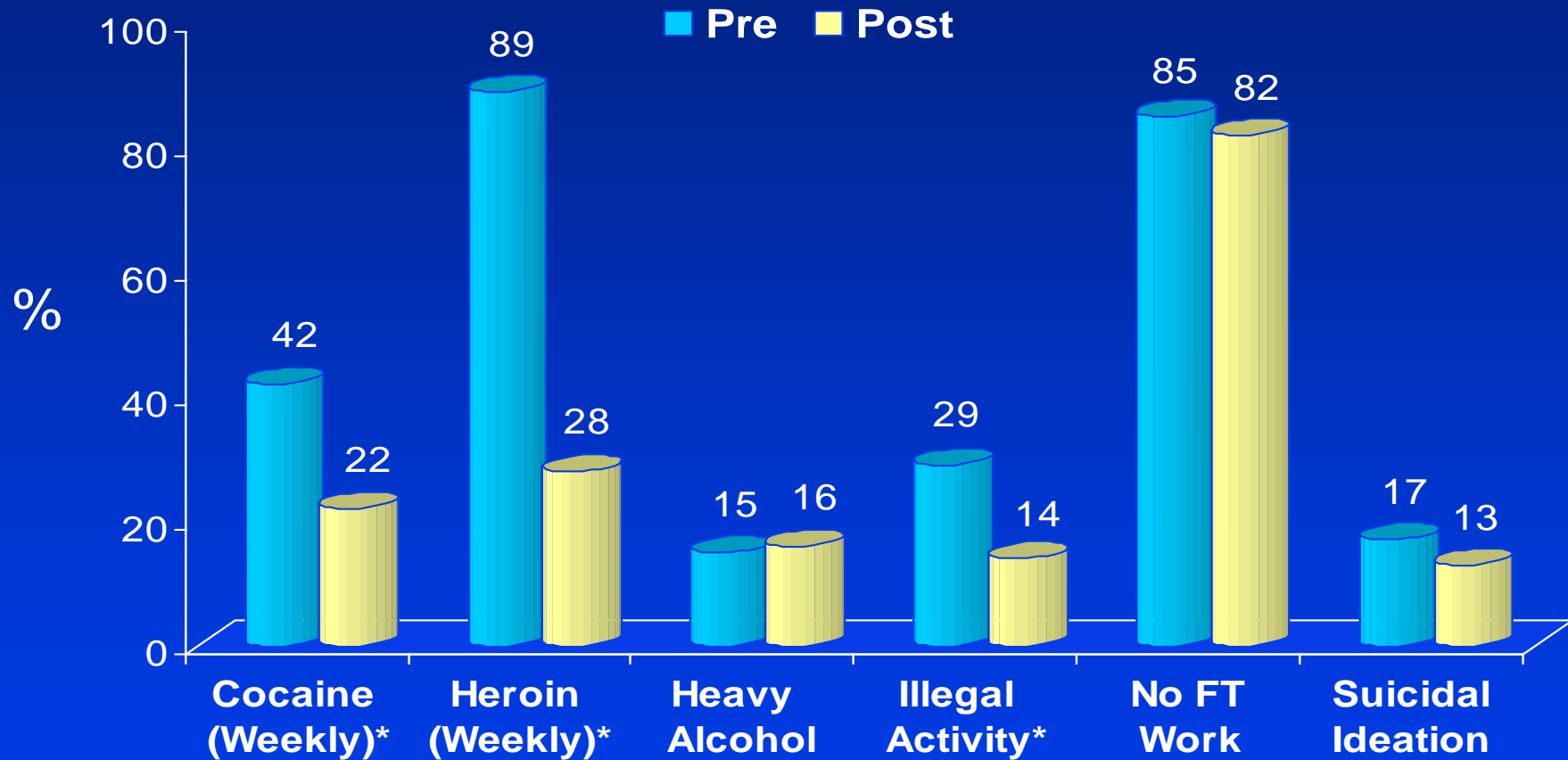
- In general, detoxification from heroin has poor treatment outcomes.
- Discontinuing agonist therapy is often followed by relapse.
- Hall et al., 2000: all received 12-months of low intensity counseling; 12 months of methadone was superior to 6 months of methadone. **Methadone >1 year better.**
- Ling et al., 2005: Multi-site study of 2 week **buprenorphine as detox** for withdrawal (+ counseling) showed **29% success rate** at 2 weeks (finished medication and negative drug test)

Opioid Agonist Maintenance Treatment

Considerable evidence for its effectiveness in community settings in reducing:

- Heroin use
- Criminal activity
- HIV risk behavior

Opioid Treatment Programs Improvements After Treatment (N = 727)

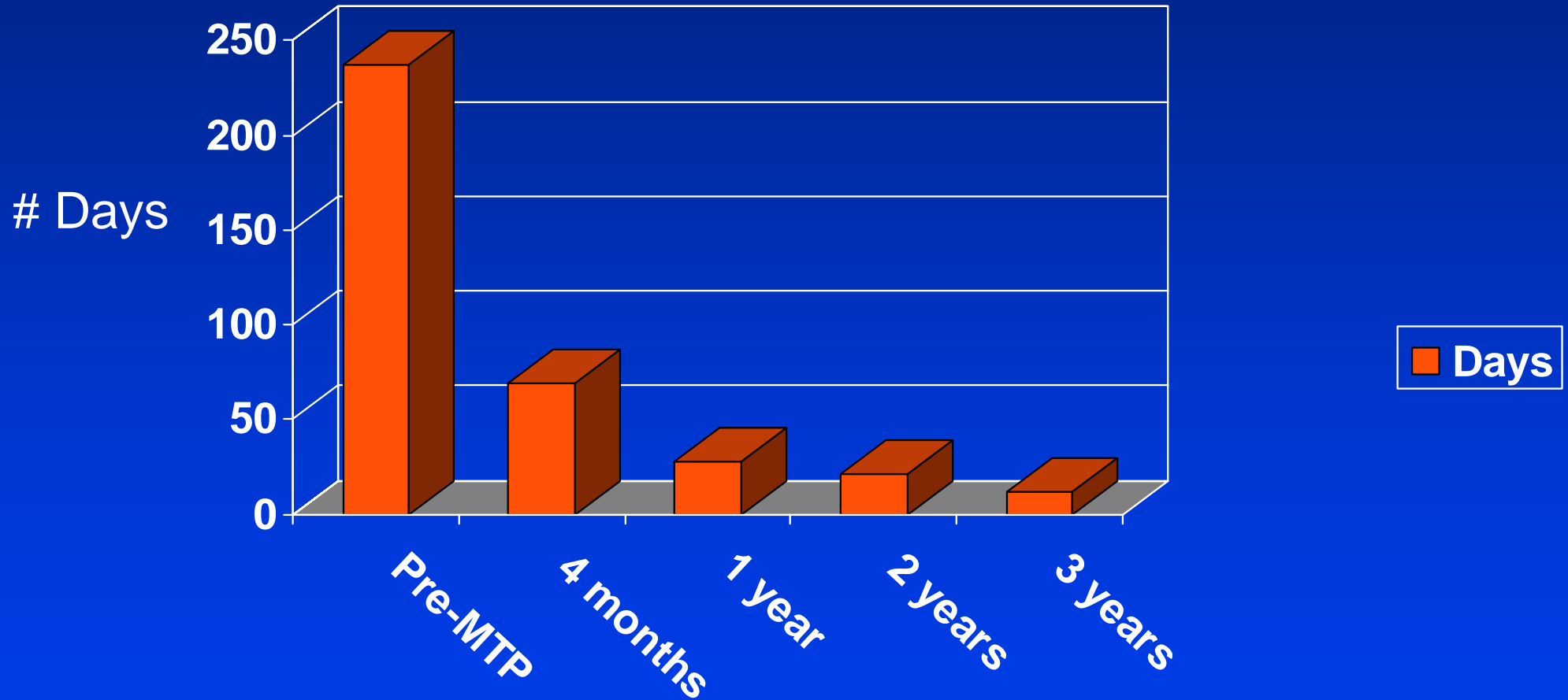


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DATOS study Hubbard, Craddock, Flynn et al., 1997

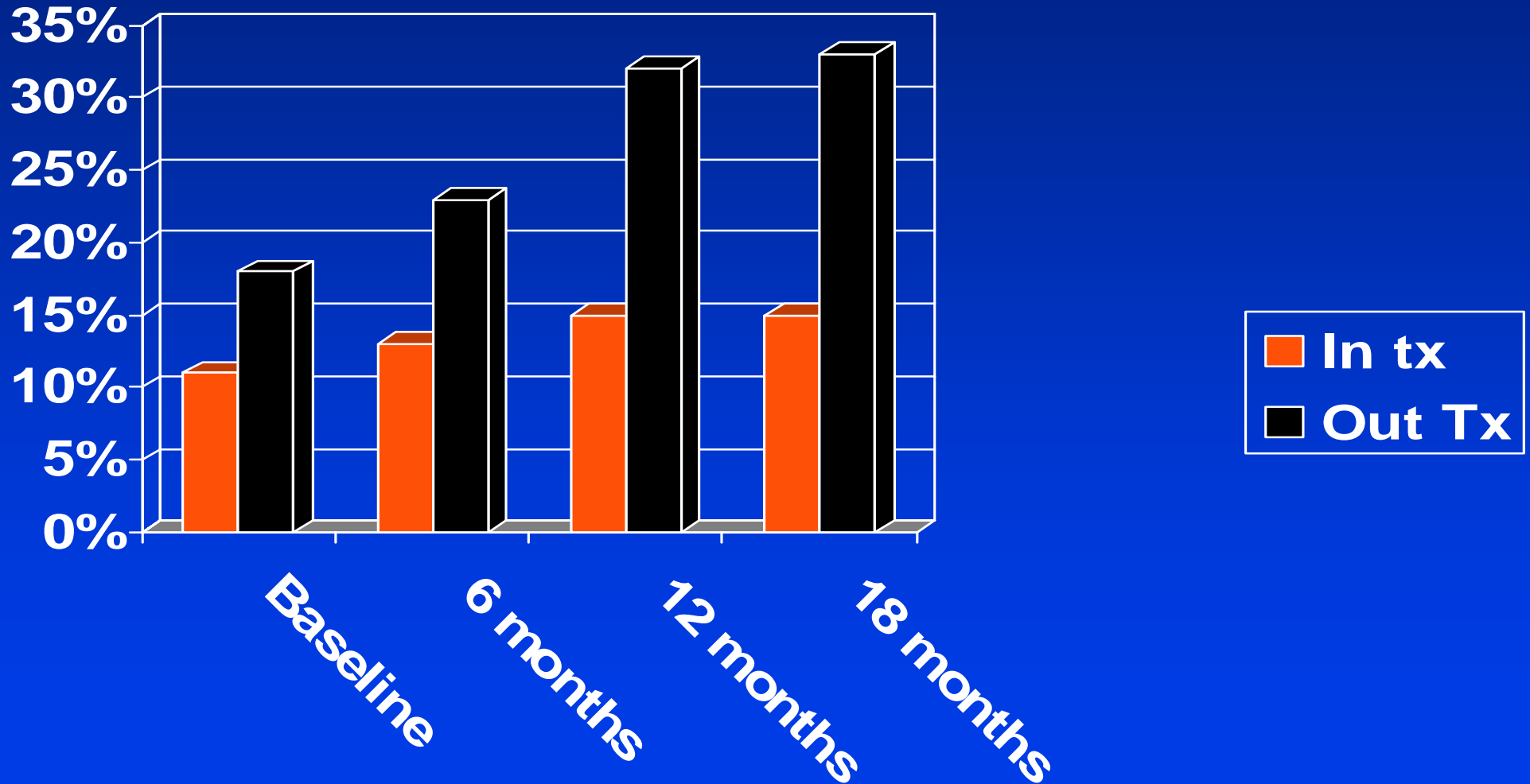
Reduction in Crime-Days with MMTP

Ball & Ross 1991



HIV infection rate by MTP Enrollment

Metzger et al., 1993



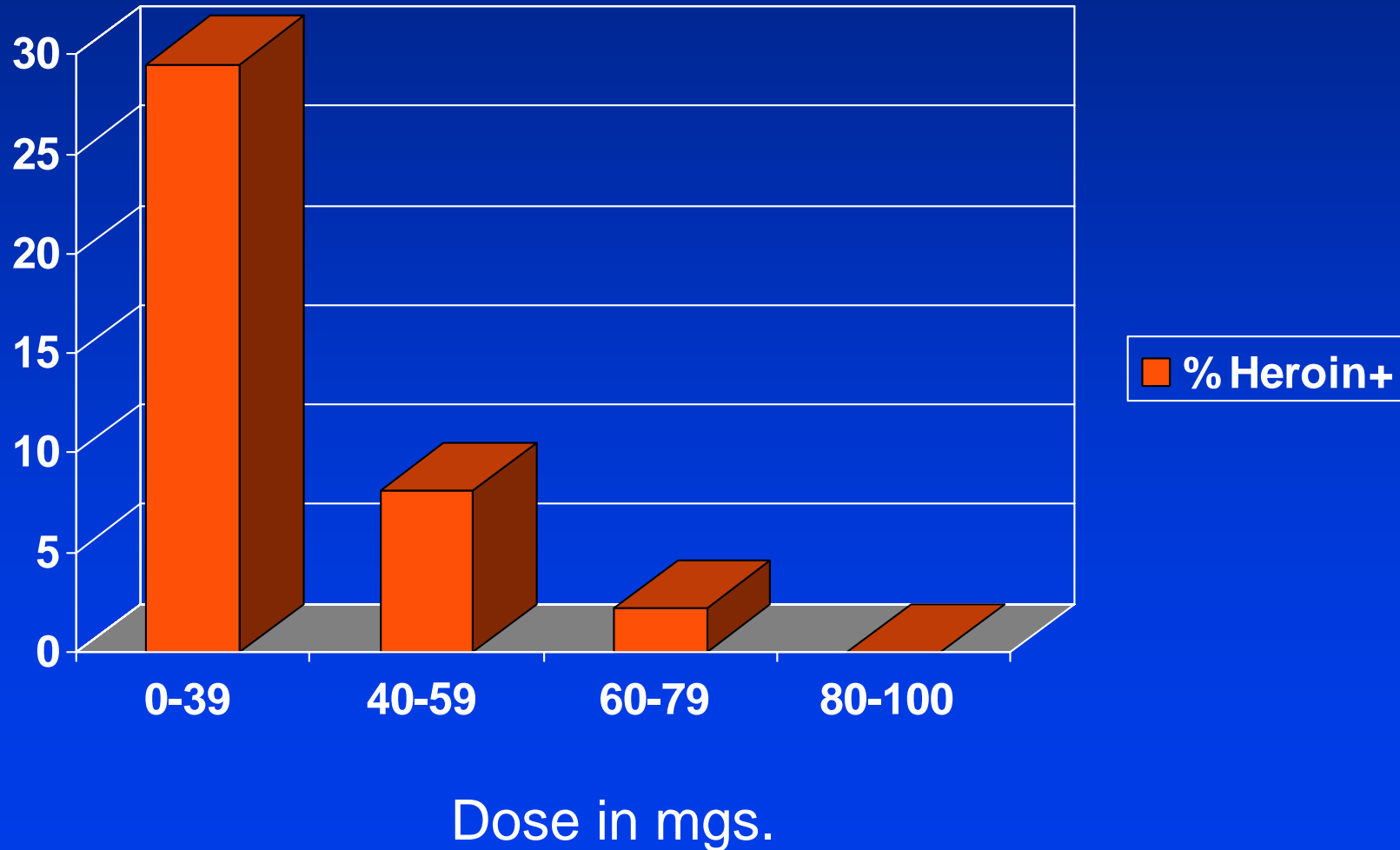
Opioid Agonist Maintenance Treatment

Next slides show superior outcomes related to:

- Higher doses
- Longer length of treatment
- Psychosocial services of appropriate intensity & duration

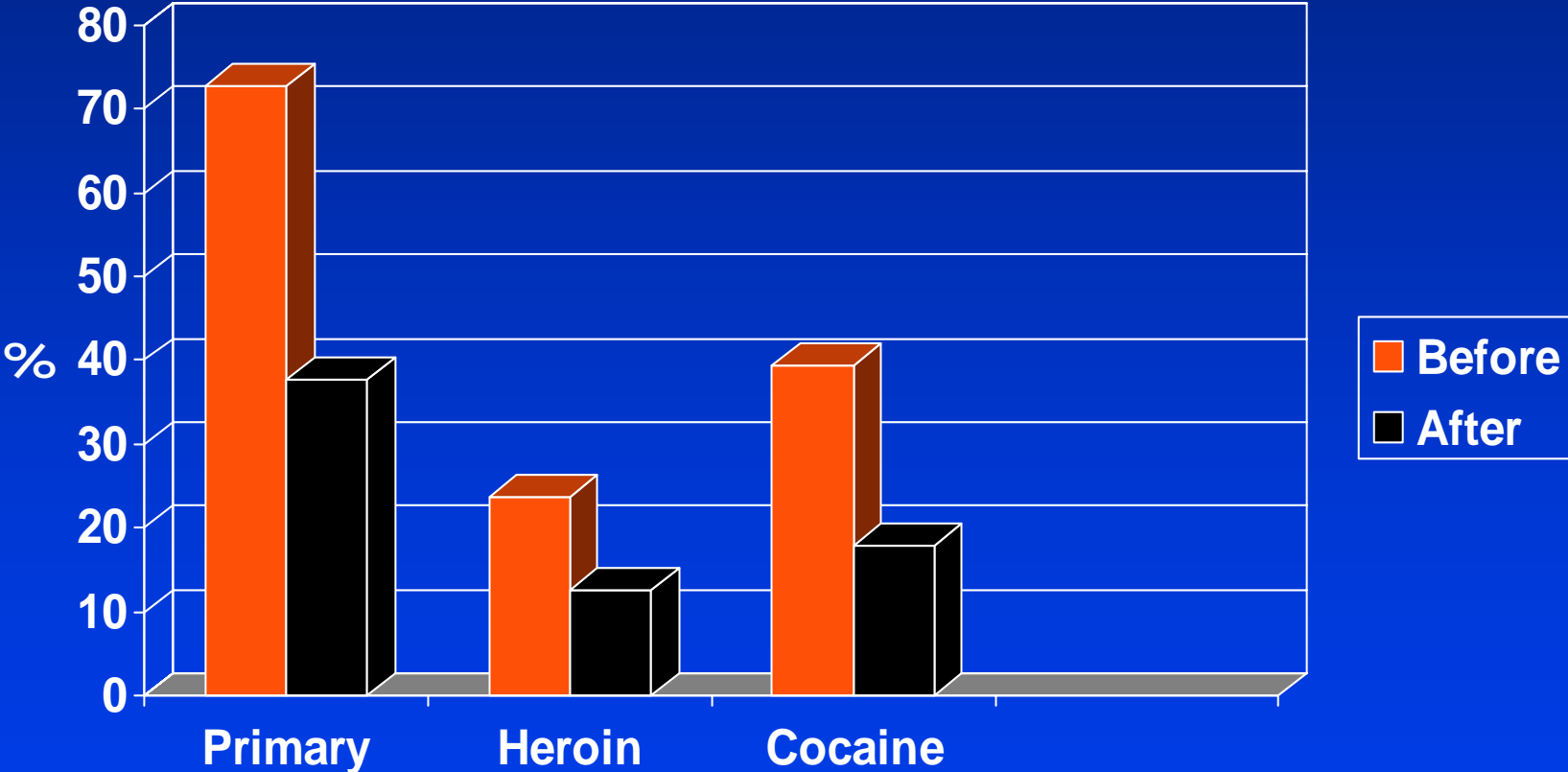
Heroin Use in Past 30 Days (N=407) by dose of methadone within MMTP

Ball & Ross (1991)



Drug Use 12 Months Before/After Treatment:

(Gerstein 1997)



Effects of Psychosocial Services with MMTP

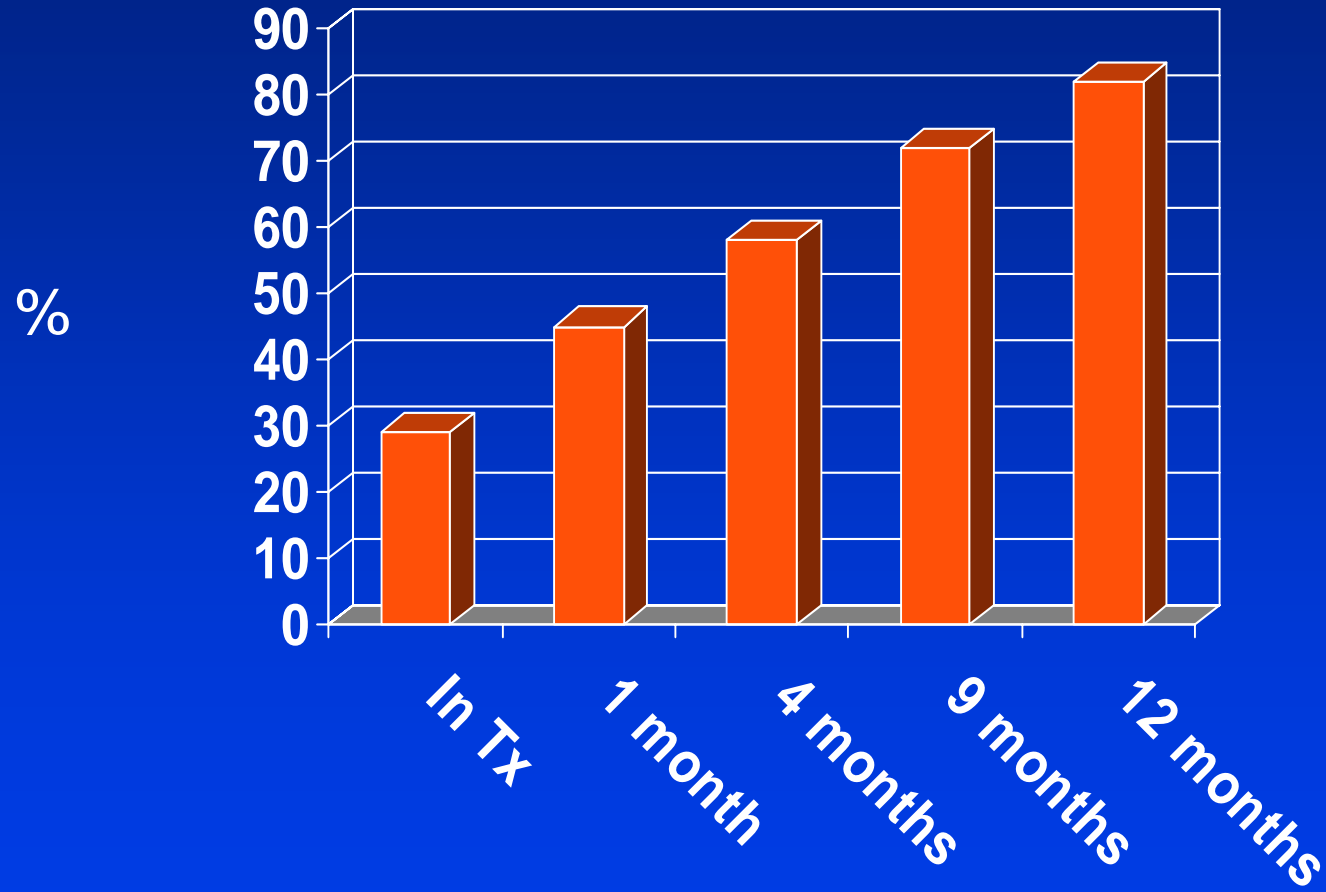
McLellan et al., 1993

% subjects with heroin-free consecutive weeks



Relapse after discharge from MMPT

Ball & Ross 1991

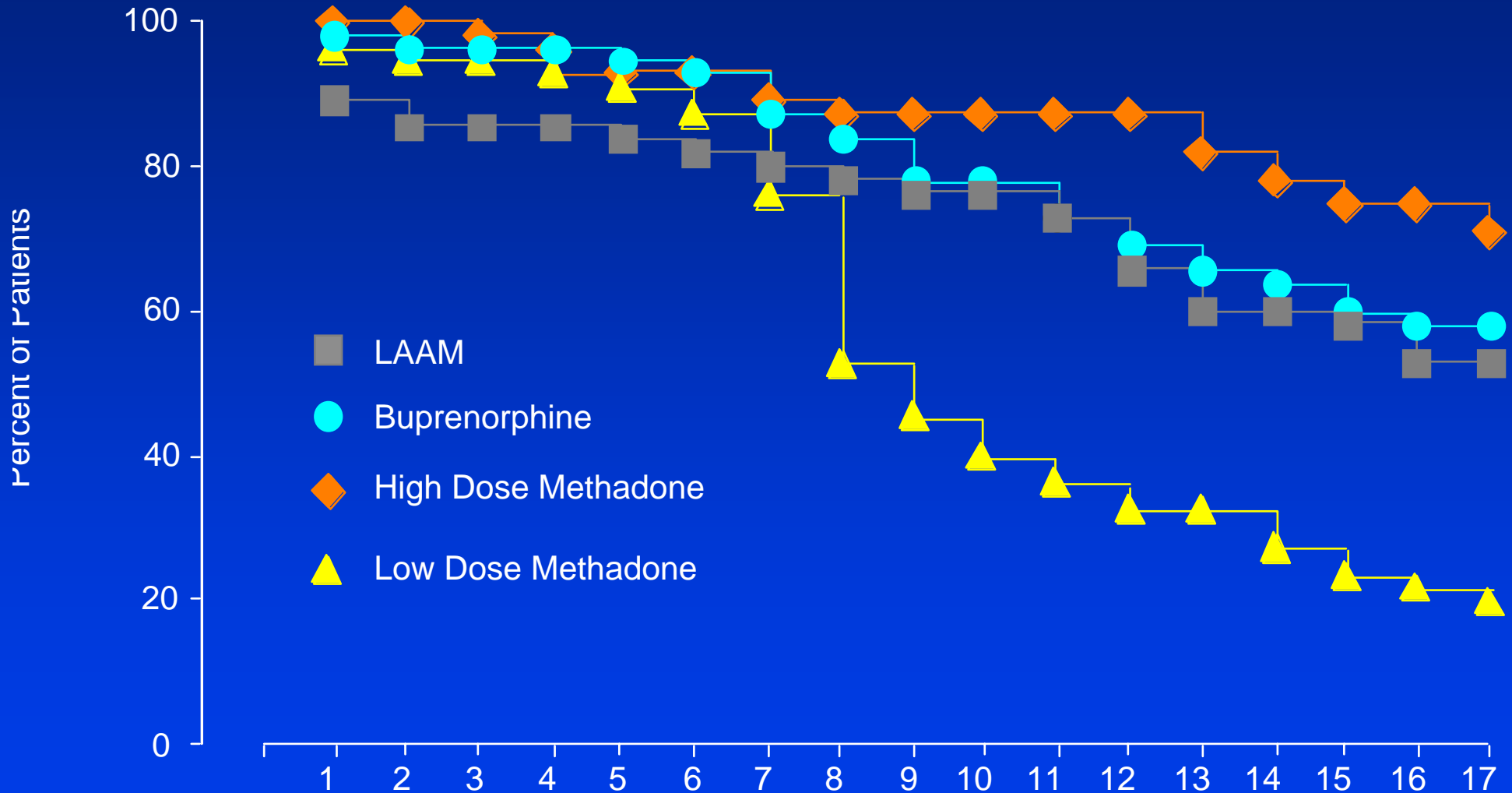


■ % injecting

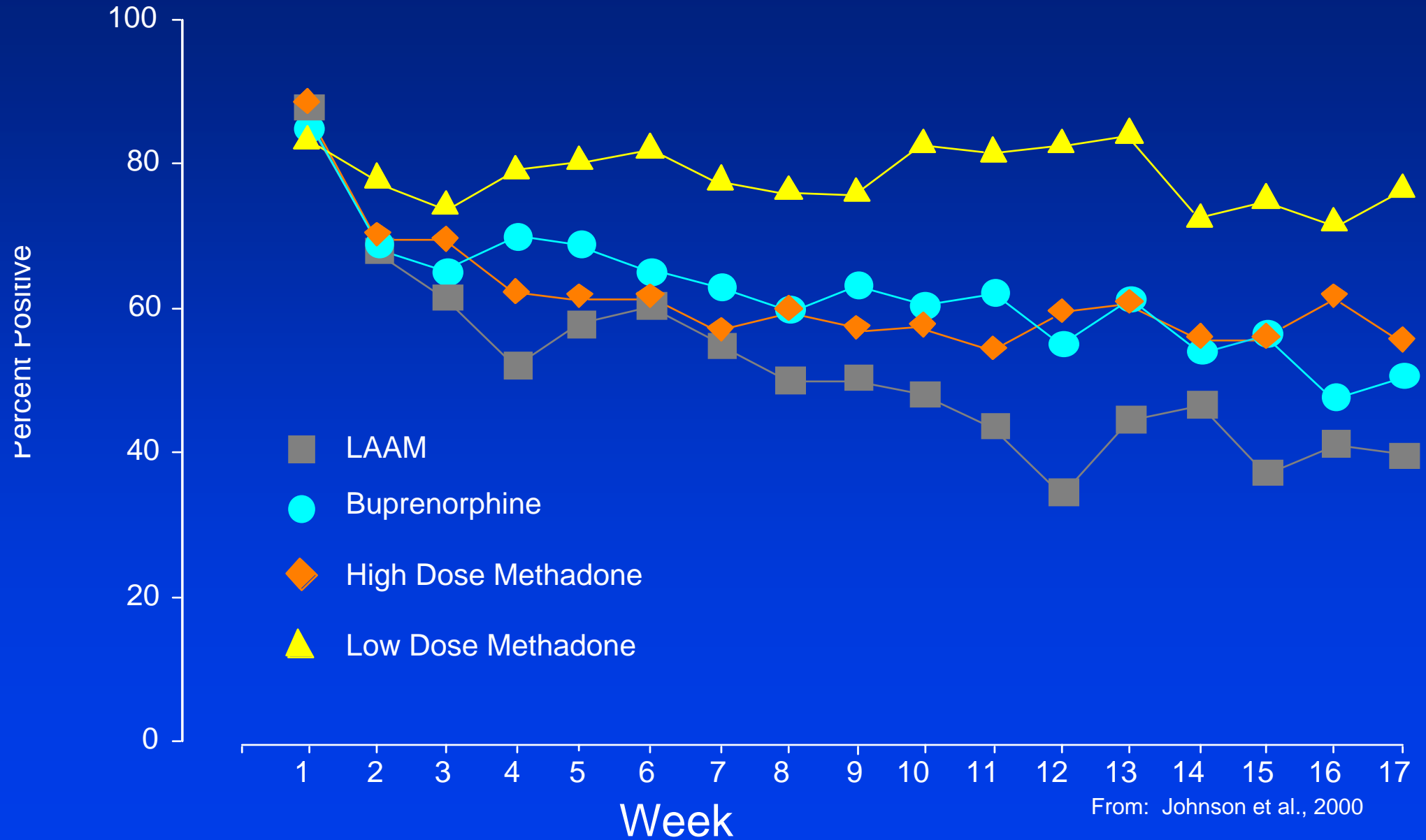
Buprenorphine efficacy for maintenance treatment

- Numerous outpatient clinical trials comparing efficacy of daily buprenorphine to placebo and to methadone
- These studies conclude:
 - Buprenorphine more effective than placebo
 - Buprenorphine equally effective as moderate doses of methadone (e.g., 60 mg per day)

Randomized Control Trial of Treatment Modalities: Study Retention as Endpoint

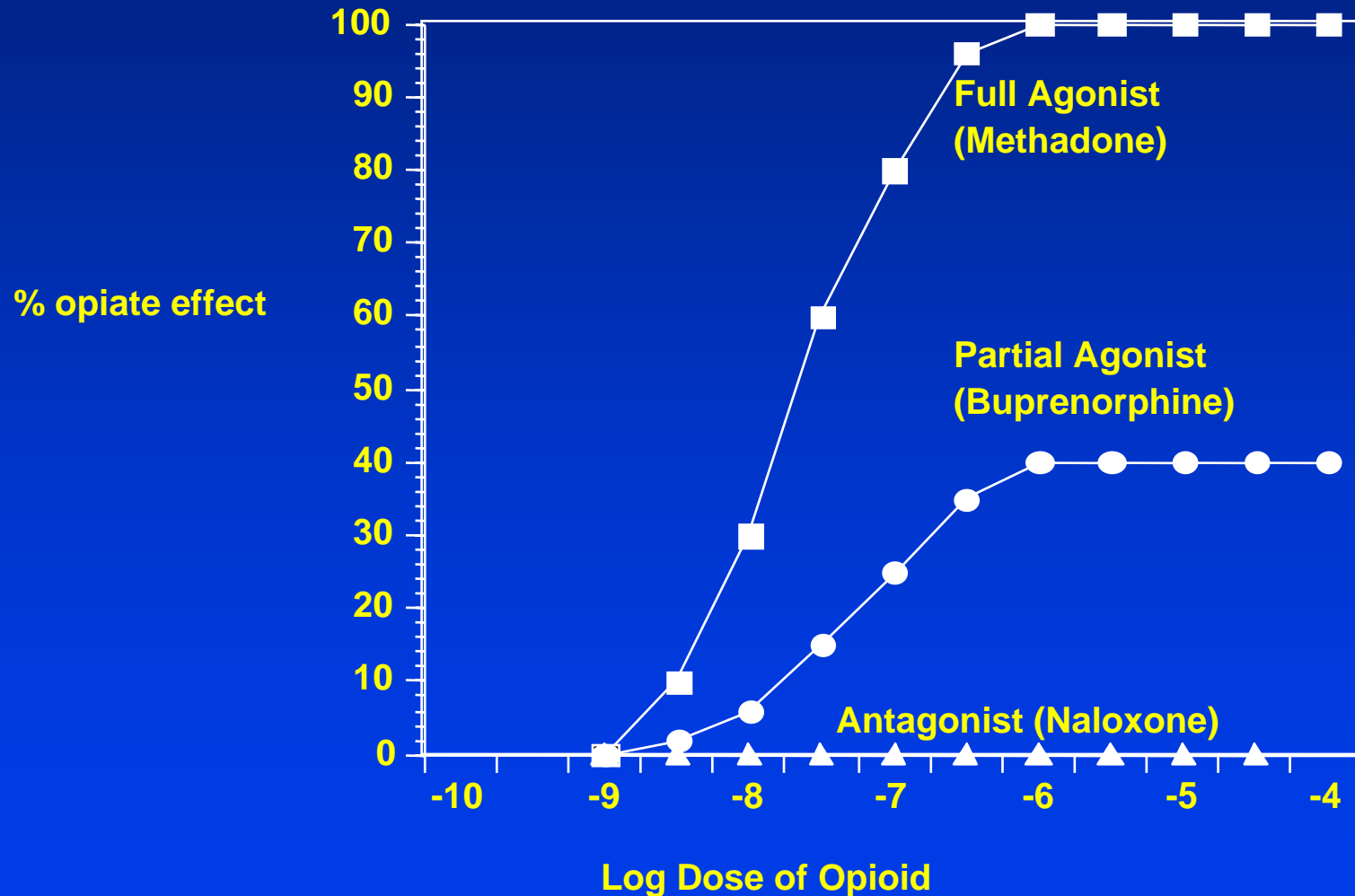


Randomized Control Trial of Treatment Modalities: Opioid Positive Urine Specimens as Endpoint



From: Johnson et al., 2000

Opiate Effect: Full Agonist (Methadone), Partial Agonist (Buprenorphine), Antagonist (Naloxone)



Opioid Agonist Treatment: Summary

- Methadone or buprenorphine are FDA-approved.
- Both can be provided in Outpatient Treatment Programs.
- Buprenorphine can be provided in MD offices.
- Better outcomes related to higher dosing and longer treatment duration.
- However, both treatments in short-supply.

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Bringing Treatment to Scale

- Treatments can be proven effective, **BUT** ...
- Public health impact limited if they are only given to a small percentage of the affected population.

Number with Drug Use Problem and Treatment

NHSDUH (2004)

Illicit drug use problem: 8.1 million

In treatment (18%): 1.4 million

Of those not in treatment

- Felt they needed treatment: 0.6 million
- Tried but failed: 0.2 million
- **NOTE: only 9.9% of those in need of treatment, received it.**

Estimated Prevalence IDU, Percent in Treatment,
Prevalence of HIV in IDU across 95 metropolitan areas, U.S.,
1998

Variable	Range	Median
IDU / 10,000	19 – 173	60
In Treatment	1% – 39%	9%
HIV Prevalence	2% - 28%	6%

Friedman, 2004, 2005

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Public Health Benefits of Bringing Treatment Systems to Scale

Three case studies:

U.S. in early 1970s

France's use of buprenorphine

Hong Kong's use of methadone

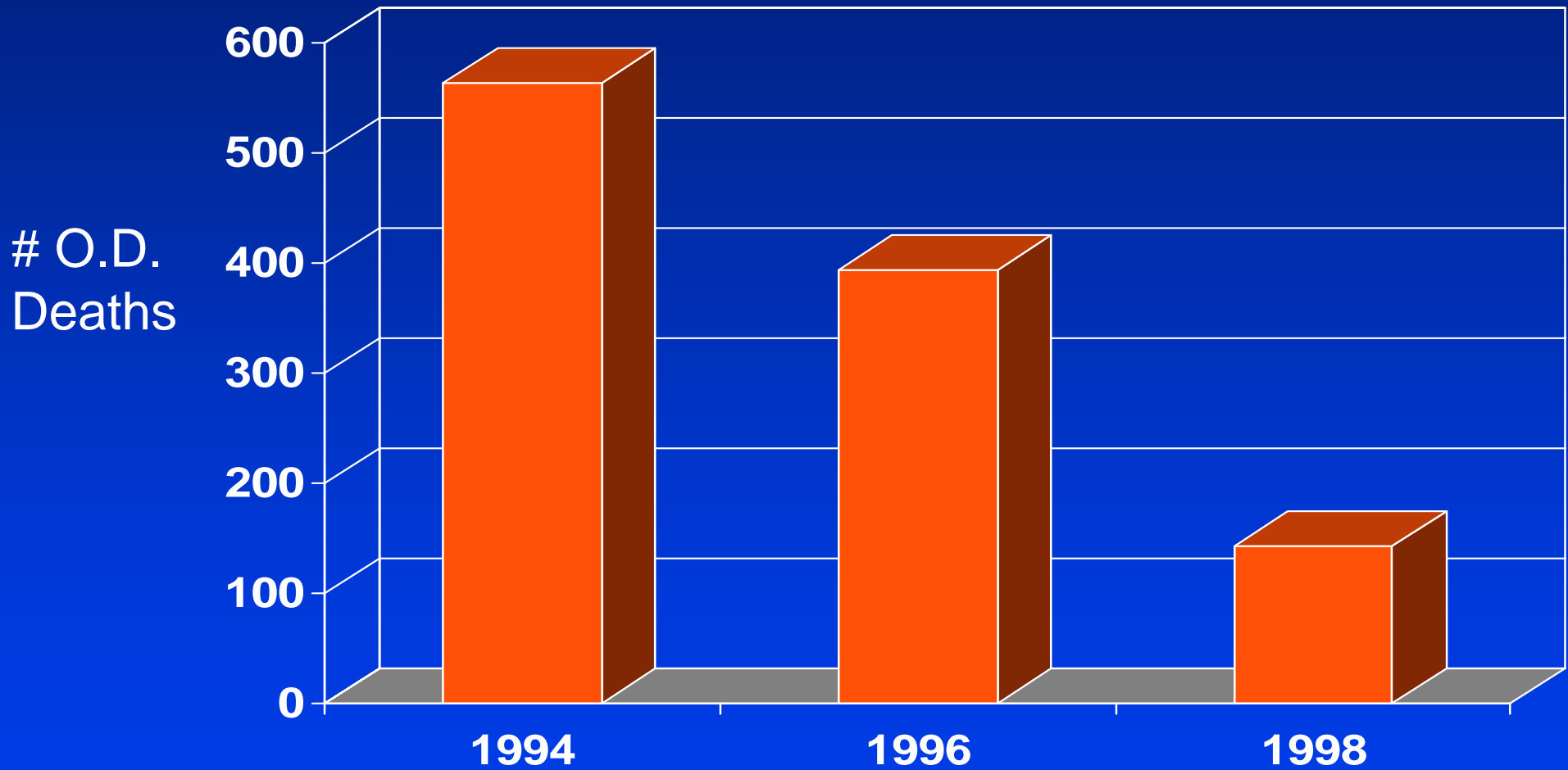
Creation of US Drug Treatment System in 1971 to 1973

- **Jerome Jaffe, M.D.**, created the U.S. treatment system for President Nixon
- Treatment funding was 2/3 of total drug control budget.
- 1971 to 1973 **treatment expanded** significantly.
- 1972: 94 or 154 US cities reported **drop in crime**.
- 1973: Opioid **overdose deaths dropped** significantly in NY, Chicago, SF and Wash. DC.
- Drug-related **hepatitis cases dropped** in NY during first quarters of 1971 to 1973 from 318 to 89.

Treatment Expansion in France

- **Beginning in 1995** rapid increase in patients in opioid treatment with methadone or buprenorphine.
- **By 2001, with estimated 150,000 heroin users in France**
 - 60,000 patients taking methadone
 - 7,200 patients taking buprenorphine
- **Currently:**
 - 65,000 patients on buprenorphine and about 6,500 on methadone.
 - Decrease in opioid overdose deaths 79% since 1995.

France: Decrease in OD Deaths



Methadone: Hong Kong

- Methadone clinics in Hong Kong operating in 1969.
- Through 2001 they had treated 56,000 individuals.
- In 2000 there were 9,434 patients enrolled in treatment of 12,904 known heroin addicts **(73%)**.
- In 2000, HIV prevalence in methadone patients was 0.27%
 - In Baltimore, 20% methadone patients tested are HIV positive

Expanding Access to Methadone and Other Drug Abuse Treatment Programs in the U.S.:

Example: Community Outreach/Needle Exchange Promotes Access to Drug Treatment

Preponderance of Evidence: Needle Exchange (IOM Report 1995, NIH Consensus Conference 1997)

Not Increase Drug Use

Not Relapse to Drug Use

Not Encourage youth into Drug Use

Not Increase Needle Sharing

Not Increase Discarded Needles

Not Increase Crime/Violence

Not Increase HIV rates (U.S.)

DOES Facilitate Drug Abuse Treatment

Baseline Differences in Methadone Admission Referrals from Needle Exchange vs. Standard Referral Source (Brooner, 1988)

Variables	NEP	SRS
Past Month:		
Heroin (days)	29	17
Cocaine (days)	15	5
Cocaine dependent	74%	41%
Illegal Activity (days)	12	3
No prior drug treatment (ever)	42%	26%

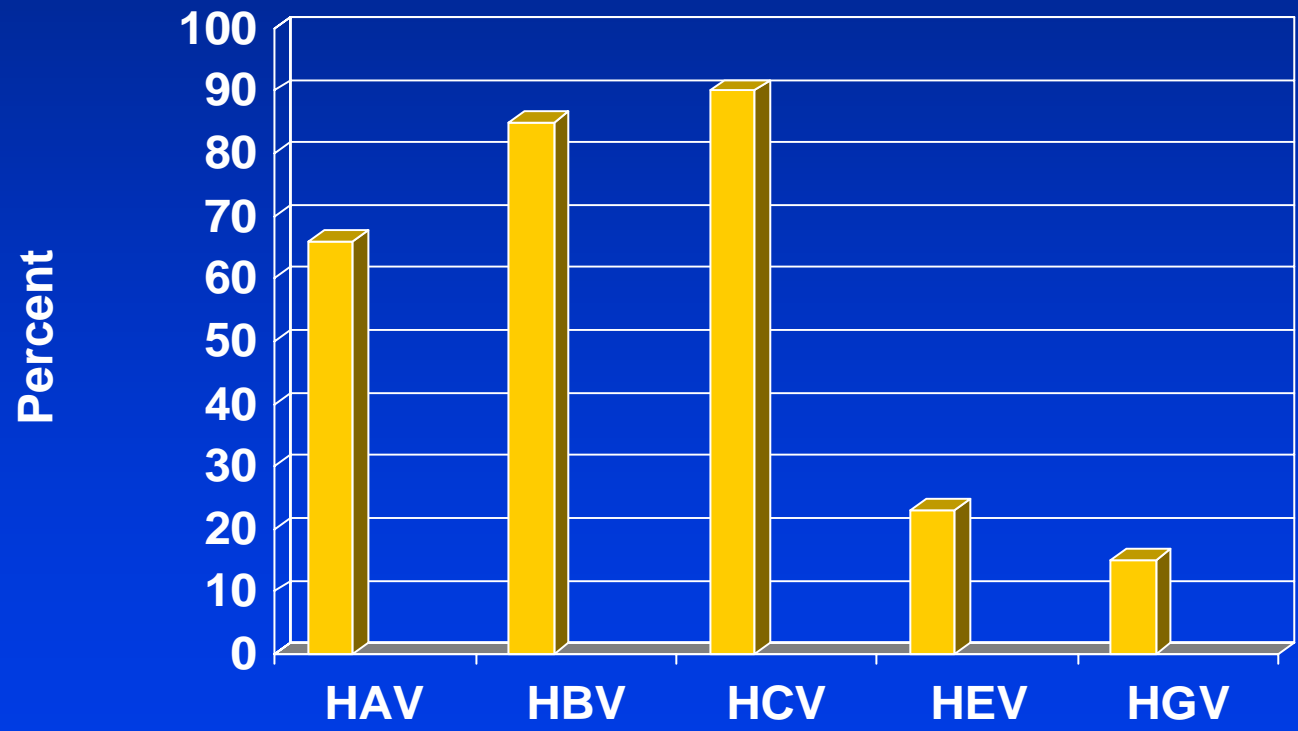
Outcome after 13 weeks in Methadone program by referral source (NEP, SAS)

Variable	NEP	SRS
Completed 13 weeks	76%	88%
Change in Heroin days	29 → 16	7 → 4
Decrease in shared needles (days)	9%	11%

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Prevalence of Infections in IDUs (mostly untreated) ALIVE Study, Baltimore, MD



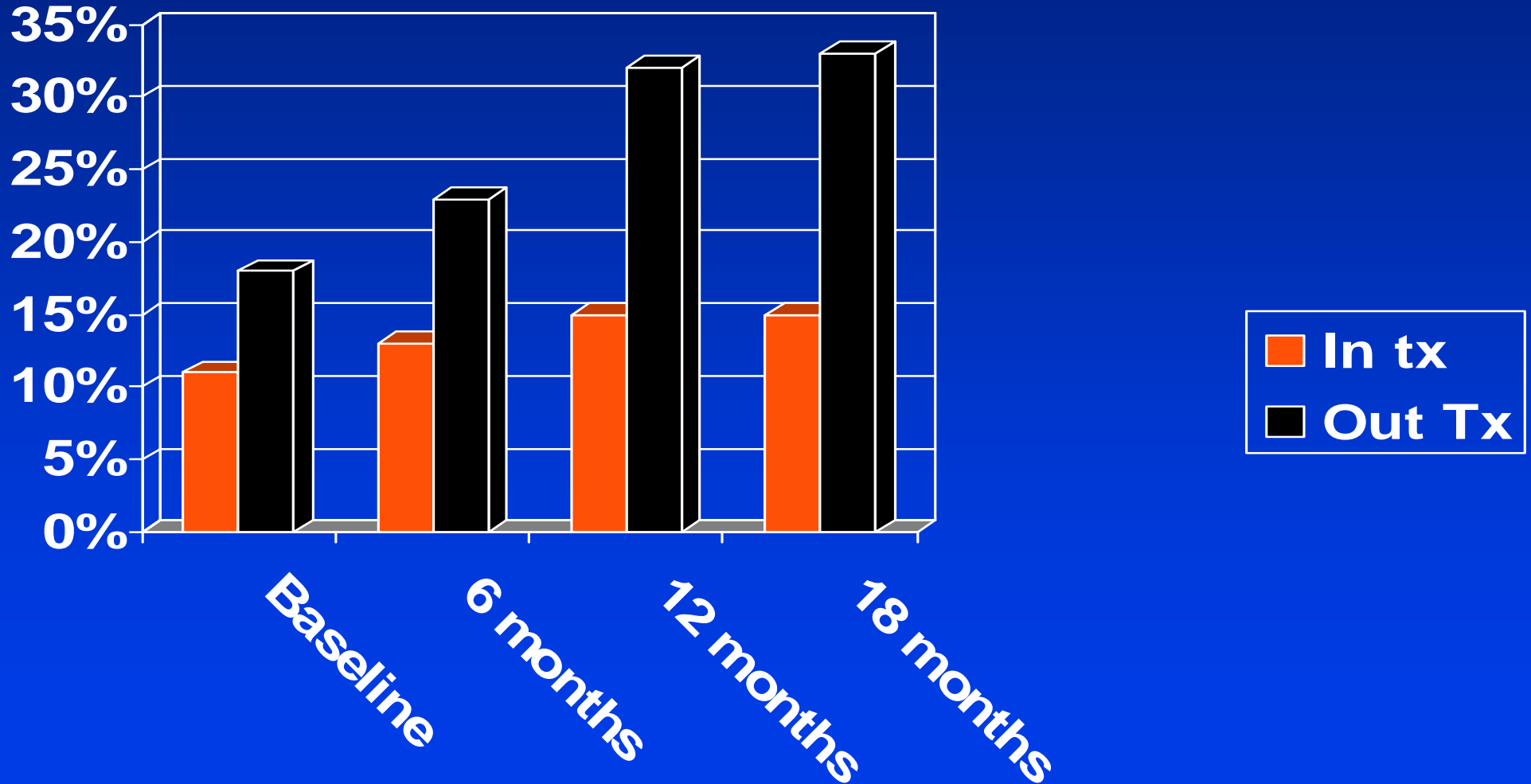
Prevalence of Infections in IDUs ALIVE Study, Baltimore, MD (cont'd.)

Infection:	Rate
HIV	24%
TB (PPD+)	25%
STDs (ever)	60%

Drug Treatment Is HIV Prevention

HIV infection rate by MTP Enrollment

Metzger et al., 1993



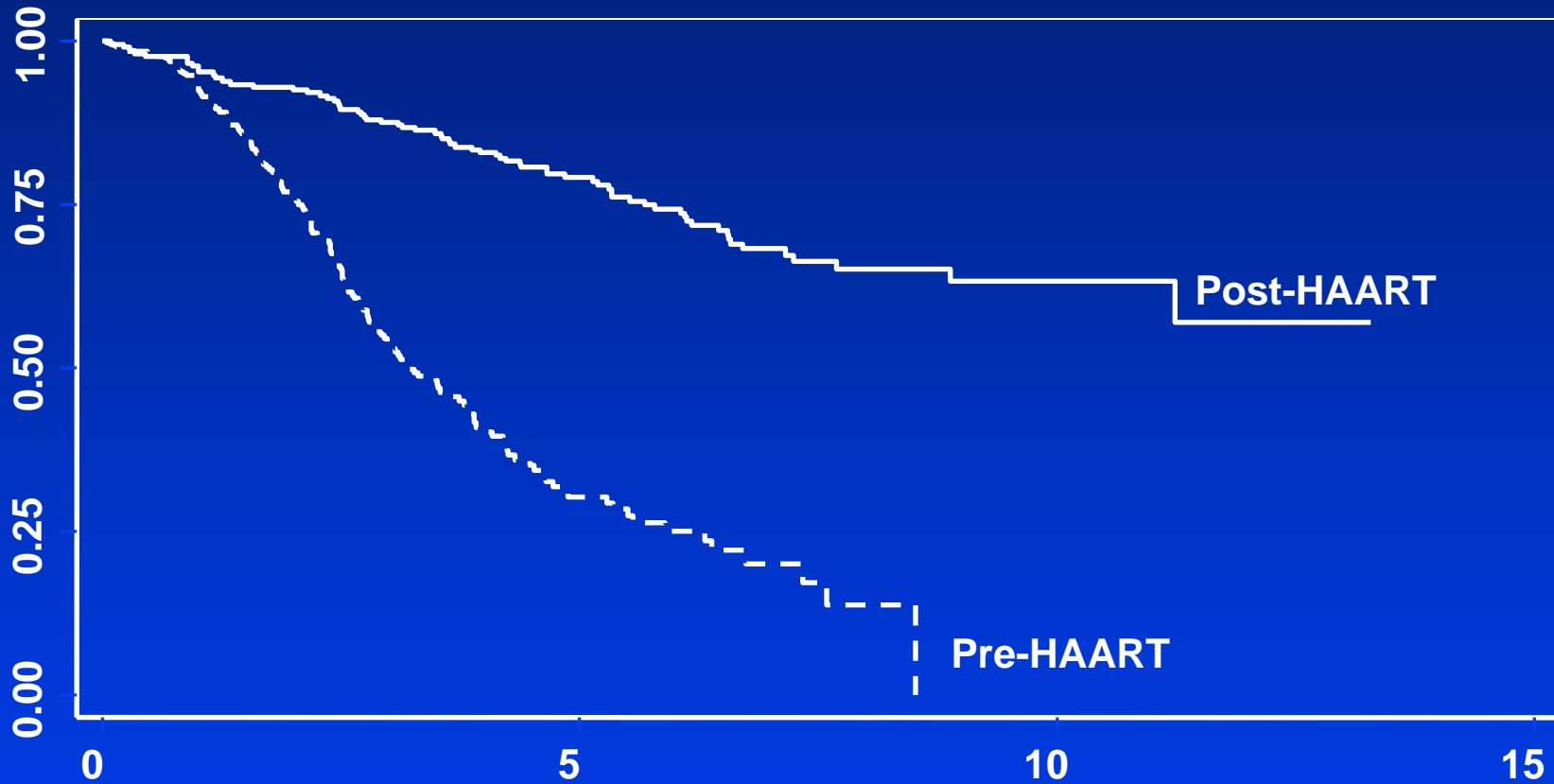
Sexual Risk Behaviors by Drug Abuse Treatment Status, WIHS Study

Drug Treatment Program	Odds Ratio
Sexual active	0.83
Used Condoms (In program > 3x's)	0.85 (1.46)

Drug Treatment Promotes Access to HIV Care



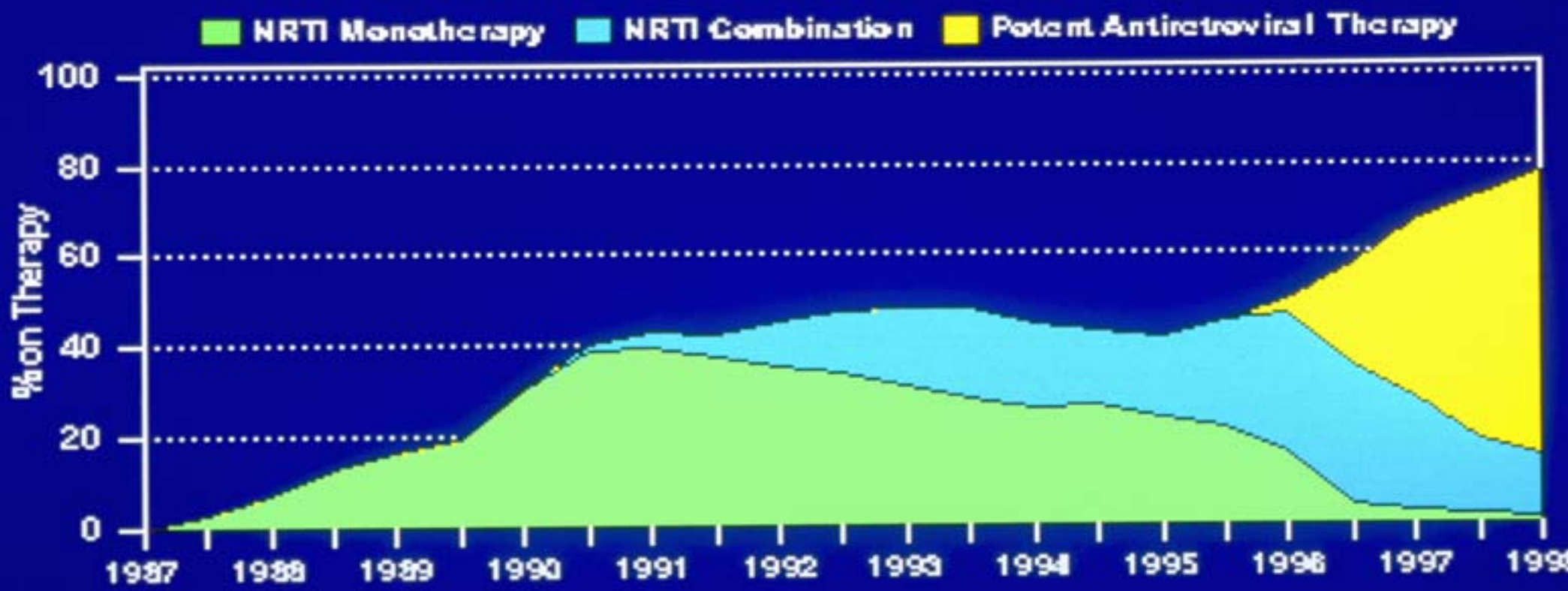
Survival pre/post HAART



	Hazard Ratio	95% CI
Pre-HAART	1.00	
Post-HAART	0.21	0.16 – 0.29

Use of Antiretroviral Therapy* by Seropositive MACS Participants without Clinical AIDS**

Detels, Muñoz, McFarlane, et al. JAMA 1998 (update)

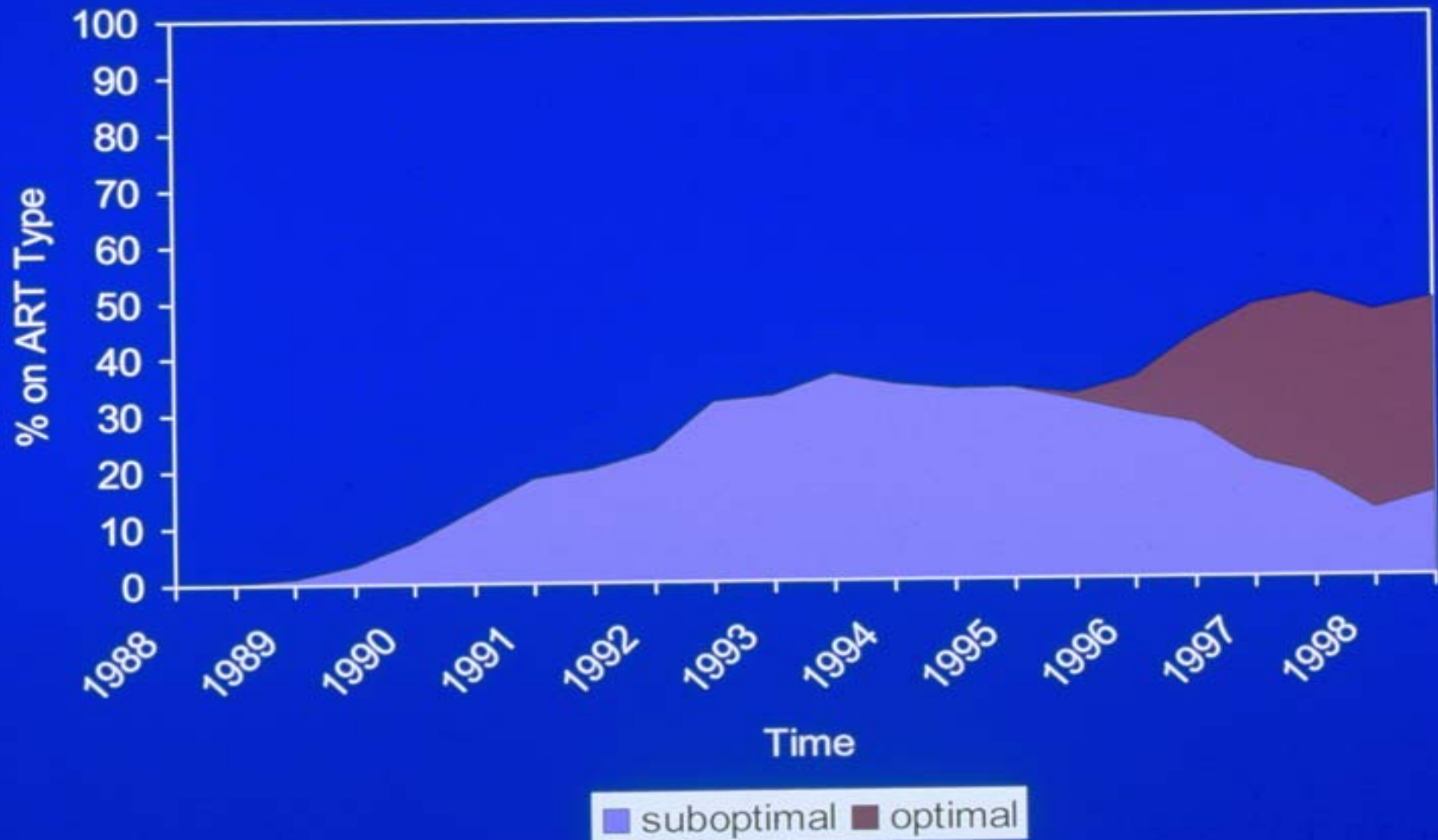


* Non-trial drug use only

** CDC 1993 definition excluding immunologically defined AIDS

October 1998

ART History in the ALIVE Study





Predictors of Receiving Potent ART

Variables	Adjusted Hazard Ratio (95% CI)
<i>Sociodemographic Factors</i>	
Female*	0.75 (0.55-1.01)
<i>Behavioral Factors</i>	
Consistent injection	0.74 (0.57-0.98)
<u>Methadone treatment</u>	<u>1.46 (1.07-2.01)</u>
<i>Health Care Access</i>	
Health insured*	1.67 (1.14-2.46)
Regular source of care*	0.76 (0.58-1.00)
<i>Health Care Utilization</i>	
<2 ambulatory visits	0.35 (0.26-0.47)
<i>Clinical Factors</i>	
CD4 cell count/100 cells	0.91 (0.84-0.99)
ART before 1996*	2.33 (1.72-3.17)

JAMA, 2001

*fixed covariate; otherwise, time-dependent

Summary

- Addiction is common
- Treatment has proven effectiveness
- Treatment is in short supply
- Untreated addiction results in avoidable public health problems
- Significantly increasing the percentage of the addicted population enrolled in treatment should be a key public health goal
- It will result in benefits to the individual patient, their family and to society